

Single Product Test



Performance test (AV Products)

Impact of Anti-Virus Software on System Performance

Lavasoft Ad-Aware Pro

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Introduction

We want to make clear that the results in this report are intended to give only an indication of the impact on system performance (mainly by the real-time/on-access components) of the various Anti-Virus products in these specific tests. Users are encouraged to try out the software on their own PC's and form an opinion based on their own observations. This test looks only at the impact of the software on system performance; it does not say anything about how effective a product is at protecting against malware.

Tested products

The following product was evaluated (with default settings) in this test:

Lavasoft Ad-Aware Pro

Please note that the results in this report apply only to the products/versions listed above (e.g. 64-Bit versions, product version, etc.). Also, keep in mind that different vendors offer different (and differing quantities of) features in their products.

The following activities/tests were performed under Windows 7 Professional SP1 64-Bit:

- File copying
- Archiving / Unarchiving
- Encoding / Transcoding
- Installing / Uninstalling applications
- Launching applications
- Downloading files
- PC Mark 7 Professional Testing Suite

Test methods

The tests were performed on an Intel Core i5 2.67 GHz machine with 4GB of RAM and SATAII hard disks. The performance tests were done on a clean Windows 7 Professional SP1 64 Bit system (English) and then with the installed Anti-Virus software (with default settings). The tests have been done with an active internet connection to simulate real world impact of cloud services/features.

The hard disks were defragmented before starting the various tests, and care was taken to minimize other factors that could influence the measurements and/or comparability of the systems. Optimizing processes/fingerprinting used by the products were also considered – this means that the results represent the impact on a system which has already been used by the user for a while. The tests were repeated several times (with and without fingerprinting) in order to get mean values and filter out measurement errors. After each run the workstation was defragmented and rebooted. We simulated various file operations that a computer user would execute: copying¹ different types of clean files from one place to another, archiving and unarchiving files, encoding and transcoding² audio and video files, converting DVD-Files to iPod format, downloading files from Internet, launching applications, etc. We also used a third-party industry recognized performance testing suite (PC Mark 7 Professional) to measure the system impact during real-world product usage. Readers are invited to evaluate the various products themselves, to see how they impact on their systems (such as software conflicts and/or user preferences, as well as different system configurations that may lead to varying results).

Security products need to load on systems at an early stage to provide security from the very beginning – this load has some impact on the time needed for a system to start up. Measuring boot times accurately is challenging. The most significant issue is to define exactly when the system is fully started, as many operating environments may continue to perform start-up activities for some time after the system appears responsive to the user. It is also important to consider when the protection provided by the security solution being tested is fully active, as this could be a useful measure of boot completion as far as the security solution is concerned. Some Anti-Virus products are loading their services very late (even minutes later) at boot (users may notice that after some time that the system loaded, the system gets very slow for some moments), so the system looks like loading very fast, but it just loads its services later and makes the system also insecure/vulnerable. As we do not want to support such activities, we still do not measure boot times.

¹ We used 4GB data of various file categories (pictures, movies, audio files, various MS Office documents, PDF files, applications/executables, Microsoft Windows 7 system files, archives, etc.).

² Converting MP3 files to WAV, MP3 to WMA, AVI to MPG and MPG to AVI, as well as iPod format

Test cases

File copying

Some Anti-Virus products do not scan all kind of files by design/default (e.g. based on their file extensions), or use fingerprinting technologies, which may skip already scanned files in order to increase the speed (see comments on page 6). We copied a set of different file types which are widespread at home and office workstations from one physical hard disk to another physical hard disk.

Archiving and unarchiving

Archives are commonly used for file storage, and the impact of Anti-Virus software on the time taken to create new archives or to unarchive files from existing archives may be of interest for most users. We archived a set of different file types which are widespread at home and office workstations from one physical hard disk to another physical hard disk and unzipped them after this again on a third physical hard disk. The results already consider the fingerprinting/optimization technologies of the Anti-Virus products, as most users usually make archives of files they have on their disk.

Encoding/transcoding

Music files are often stored and converted on home systems, and converting such files takes system resources. Due that, many home users may be interested to know if their Anti-Virus product imposes a slowdown while converting multimedia files from one format to another. We encoded and transcoded some multimedia files with FFmpeg, and for the iPod conversion we used HandBrakeCLI. The impact during FFmpeg and iPod converting was almost the same.

Installing/uninstalling applications

We installed several programs (like e.g. Visual C++, .NET Framework, etc.) with MSI installers, and then uninstalled them and measured how long it took. We did not consider fingerprinting, because usually an application is only installed once.

Launching applications

Office document files and PDF files are very common. We opened some large document files in Microsoft Office (and closed it) and some large PDF files in Adobe Acrobat Reader (and closed it). Before each opening, the workstation was rebooted. The time taken for the viewer or editor application to open and a document to be displayed was measured. Although we list the results for the first opening and the subsequent openings, we consider the subsequent openings more important, as normally this operation is done several times by users, and optimization features of the Anti-Virus products take place, minimizing their impact on the systems.

Downloading files

Files are commonly downloaded from the internet. All products were “very fast” in this test.

Test results

These specific test results show the impact on system performance that Anti-Virus products have, compared to the other tested Anti-Virus products. The reported data just give an indication and are not necessarily applicable in all circumstances, as too many factors can play an additional part. As we noticed that delivering percentages gets easily misinterpreted by users (as well as misused by marketing departments or the press) and percentages would need adjustments when other hardware specifications are being used, we grouped the results by clustering them. The impact within those categories does not statistically differ, also considering error measurements. The categories were defined by the testers by consulting statistical methods like hierarchal clustering and taking into consideration what would be noticed from user's perspective or compared to the impact of the other security products.

The results of Lavasoft can be compared with the results of other AV products included in our report:

http://www.av-comparatives.org/images/stories/test/performance/performance_nov_2011.pdf

Overview of single AV-C performance scores

Vendor	File copying		Archiving/ unarchiving	Encoding/ transcoding	Installing/ uninstalling applications	Launching applications				Downloading files
						Open Word		Open PDF		
	On first run	On subsequent runs				On first run	On subsequent runs	On first run	On subsequent runs	
Lavasoft										

Key:



slow



mediocre



fast



very fast

PC Mark Tests

In order to provide an industry-recognized performance test, we used the PC Mark 7 Professional Edition³ testing suite. Users using PC Mark 7 should take care to minimize all external factors which could affect the testing suite and follow strictly at least the considerations/suggestions documented inside the PC Mark manual, in order to get consistent and valid/useful results. Furthermore, the tests should be repeated several times to verify them. For more information about the various consumer scenarios tests included in PC Mark, please read the whitepaper on their website⁴.

“Without AV” is tested on a baseline⁵ system which scores 2024 in the PC Mark test.

	PC Mark score	Points
<i>without AV</i>	2024	-
Lavasoft	2004	99,0

Summarized results

Users should weight the various subtests according to their needs. We applied a scoring system in order to sum up the various results.

For “file copying” we took the mean values, as well as for “launching applications” (on subsequent runs). Like in previous performance reports, “very fast” gets 15 points, “fast” gets 10 points, “mediocre” gets 5 points and “slow” gets zero points. This leads to the following results:

	AV-C Score	PC Mark Score	TOTAL
Lavasoft	85	99,0	184,0

³ For more information, see <http://www.pcmark.com/benchmarks/pcmark7/>

⁴ http://www.pcmark.com/wp-content/uploads/2011/05/PCMark7_Whitepaper.pdf (PDF)

⁵ Baseline system: Intel Core i5 (2.67 GHz) machine with 4GB of RAM, ATI Radeon HD4500 (512 MB)

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